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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/565,305

01/19/2007

Jiri Jekerle

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EXAMINER

LEO, LEONARD R

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,305	<b>Applicant(s)</b> JEKERLE ET AL.	
	<b>Examiner</b> Leonard R. Leo	<b>Art Unit</b> 3744	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 March 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-21 is/are pending in the application.
- 4a) Of the above claim(s) 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-16 and 18-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

The amendment filed on March 18, 2010 has been entered. Claims 22-23 appear to be cancelled, claims 1-21 appear to be pending, and claim 17 remains withdrawn from further consideration. Applicants are reminded claim 17 must include the proper status identifier.

#### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “crescent shape” in claim 21 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. ***Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading.*** (emphasis added) If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12-16 and 18-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification lacks an adequate written description of the invention. There is no basis for “at least one ring extending from an inner side mounted to the inner jacket wall to a medium flow-through side disposed at a distance from the outer jacket” and “at least one disc extending from an outer side mounted to the outer jacket wall to a medium flow-through side disposed at a distance from the inner jacket” as recited in claim 12 filed in the preliminary amendment.

There is no support as to how the “crescent shape” in claim 21 may be incorporated with the rings 9 and/or discs 10.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-16 and 18-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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The recitations of “at least one ring extending from an inner side mounted to the inner jacket wall to a medium flow-through side disposed at a distance from the outer jacket” and “at least one disc extending from an outer side mounted to the outer jacket wall to a medium flow-through side disposed at a distance from the inner jacket” in claim 12 are not clearly understood. It is believed the ring and disc structures are reversed and references to the inner and outer jacket walls are inconsistent.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-16 and 20 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al in view of Donaldson.

Kuo et al discloses a tube bundle heat exchanger comprising an inner 17 and an outer 2 jacket wall defining a channel with an axis; a tube bundle including a plurality of tubes 13 parallel to the axis; a ring 36 having a plurality of bores receiving outermost tubes and mounted to the inner jacket wall 17 and spaced from the outer jacket wall 2 to define a medium flow-through side; a disc 35 having a plurality of bores receiving innermost tubes and mounted to the outer jacket wall 2 and spaced from the inner jacket wall 17 to define a medium flow-through side; the ring 36 and disc 35 defining a zigzag pattern in the axial direction of the channel; but does not disclose a perimeter contour and web along the medium flow-through side of the ring and disc.

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Donaldson discloses a tube bundle heat exchanger comprising an outer jacket wall 17 defining a channel having an axis; a tube bundle including a plurality of tubes 34, 35 parallel to the axis; and baffles 37 having a medium flow-through side spaced from the outer jacket wall with a perimeter contour and web (Figure 2) for the purpose of minimizing pressure drop in the shell side flow.

Since Kuo et al and Donaldson are both from the same field of endeavor and/or analogous art, the purpose disclosed by Donaldson would have been recognized in the pertinent art of Kuo et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Kuo et al a baffle having a medium flow-through side with a perimeter contour and web for the purpose of minimizing pressure drop in the shell side flow as recognized by Donaldson.

Regarding claims 13 and 16, Figure 2 of Donaldson discloses the ring web of baffle 37 is substantially constant over the perimeter contour and is read as an “undulating shape.”

Regarding claims 14-15, the specific web width is considered to be an obvious design choice, producing no new and/or unexpected results and solving no stated problem. One of ordinary skill in the art would employ any web width to achieve a desired tube support strength.

Regarding claim 20, Donaldson discloses straight tubes 34, 35.

Claims 18-19 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al in view of Donaldson as applied to claims 12-16 and 20 above, and further in view of Applicants' Admitted Prior Art Figure 1 (APA).

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The combined teachings of Kuo et al and B lacks a plurality of pairs of inner and outer jacket walls.

APA discloses a tube bundle heat exchanger comprising an inner 7 and an outer 8 jacket wall defining a channel with an axis 6; a tube bundle including a plurality of tubes 3 parallel to the axis; a ring 9 having a plurality of bores receiving the tubes and mounted to the outer jacket wall 8 and spaced from the outer jacket wall 7 to define a medium flow-through side; a disc 10 having a plurality of bores receiving the tubes and mounted to the inner jacket wall 7 and spaced from the outer jacket wall 8 to define a medium flow-through side; the ring 9 and disc 10 defining a zigzag pattern in the axial direction of the channel; wherein a plurality of inner and outer jacket walls define an inner 4 and outer channel 5 for the shell side fluid for the purpose of improving residence time and heat transfer.

Since Kuo et al and APA are both from the same field of endeavor and/or analogous art, the purpose disclosed by APA would have been recognized in the pertinent art of Kuo et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Kuo et al a plurality of inner and outer jacket walls for the purpose of improving residence time and heat transfer as recognized by APA.

Regarding claim 19, APA discloses the rings 9 and discs 10 are disposed in both channels.



***Response to Arguments***

The Examiner acknowledges the specification was amended in the preliminary amendment to delete the last paragraph on page 2.

The objection to the specification is maintained. As emphasized in bold italics in the previous and instant Office actions, section headings are missing.

The objection to claim 13 is withdrawn in view of the amendment to the claim.

Applicants state claims 12-20 are pending, yet claims 12-21 are listed and “claims 22-22” are cancelled. It is unclear where the typographical error lies. Clarification is necessary.

The objection to the drawings under 37 CFR 1.83(a) and the rejection under 35 U.S.C. 112, first paragraph, are maintained, since claim 21 appears to be pending.

The rejection in view of Applicants’ Admitted Prior Art Figure 1 is withdrawn. The Examiner appreciates the enlarged Figure 1, since the clarity of the drawings is questionable. The Examiner suggests providing drawings of better clarity or larger scale to clearly depict the differences between the prior art and the instant invention.

Applicants’ arguments have been considered but are moot in view of the new ground(s) of rejection.

No further comments are deemed necessary at this time.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ Leonard R. Leo /  
PRIMARY EXAMINER  
ART UNIT 3744

May 19, 2010